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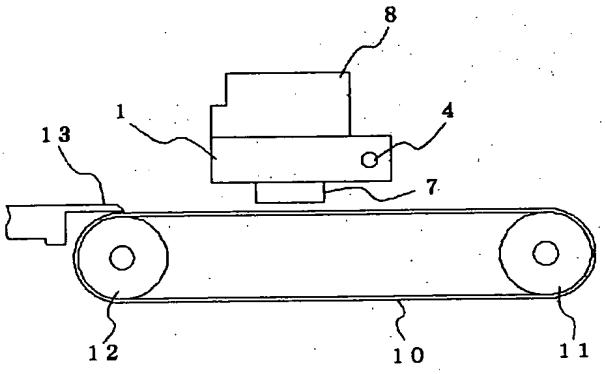
(54)【発明の名称】　記録装置

(57)【要約】
【課題】　記録用紙の種類に関わりなく、高い精度で紙送りすること。
【解決手段】　主走査方向に往復動するキャリッジ1に搭載されてドットを形成する記録ヘッド7と、副走査方向に記録媒体を搬送する記録媒体搬送機構5とを備えた記録装置において、記録媒体搬送機構5が、少なくとも表面に粘着層を備えた無端ベルト10により構成されている。



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【特許請求の範囲】

【請求項１】　主走査方向に往復動するキャリッジに搭載されてドットを形成する記録ヘッドと、副走査方向に記録媒体を搬送する記録媒体搬送機構とを備えた記録装置において、

前記記録媒体搬送機構が、少なくとも表面に吸着層を備えた無端回転部材により構成されている記録装置。

【請求項２】　前記記録媒体搬送機構の排出口側に剥離用爪部材が配置されている請求項１に記載の記録装置。

【請求項３】　前記吸着層が、粘着性ゴムにより構成されている請求項１に記載の記録装置。

【請求項４】　前記吸着層が、帯電材により構成されている請求項１に記載の記録装置。

【請求項５】　前記粘着層の表面に、記録媒体との接触面積を調整する凹凸部が形成されている請求項１に記載の記録装置。

【請求項６】　水を含浸するクリーニング部材が前記吸着層の表面に接離可能に設けられている請求項に記載の記録装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、ノズル開口からインク滴を吐出する記録ヘッドにより記録媒体を印刷する記録装置、より詳細には用紙搬送機構に関する。

【０００２】

【従来の技術】近年におけるインクジェット式記録ヘッドのカラー印刷性能の高さを利用して、ポスター等の商業向けの高い品質の印刷物の印刷に利用されている。一方、記録装置は、記録ヘッドの移動領域の上流側、及び下流側を挟むようにローラ対を配置して、これらローラ対の一方により単葉の記録用紙を所定ピッチで搬送するように構成されている。

【０００３】

【発明が解決しようとする課題】しかしながら、高い品質での印刷が必要な記録媒体は、総じて記録用紙のサイズが大きく、また事務用の記録用紙に比較して柔軟性が低いため、ローラ間での滑り等により記録用紙の搬送精度が低下し、意図した品質での印刷が困難であるという問題がある。本発明はこのような問題に鑑みてなされたものであって、その目的とするところは記録用紙の種類に関わりなく、高い精度で紙送りすることができる記録装置を提供することである。

【０００４】

【課題を解決するための手段】このような問題を解消するために本発明においては、主走査方向に往復動するキャリッジに搭載されてドットを形成する記録ヘッドと、副走査方向に記録媒体を搬送する記録媒体搬送機構とを備えた記録装置において、前記記録媒体搬送機構が、少なくとも表面に吸着層を備えた無端回転部材により構成するようにした。

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【０００５】

【作用】記録用紙を吸着力により回転部材に保持して印刷領域を移動させるため、ローラ間での記録媒体のスリップが皆無となる。

【０００６】

【発明の実施の形態】そこで以下に本発明の詳細を図示した実施例に基づいて説明する。図１は、本発明の記録装置の一実施例を示すものであって、キャリッジ１は、タイミングベルト２を介してモータ３に接続され、ガイド部材４に案内されて記録媒体搬送機構５により搬送される記録用紙の幅方向、つまり主走査方向に往復移動するように構成されている。

【０００７】キャリッジ１の記録用紙に対向する側には、記録ヘッド７、この実施例ではノズル開口からインク滴を吐出するインクジェット記録ヘッドが設けられ、上面には記録ヘッド７にインクを供給するインクカートリッジ８が着脱可能に設けられている。

【０００８】図２は、本発明が特徴とする記録媒体搬送機構５で、少なくとも表面に粘着層を備えた無端ベルト１０を、キャリッジ４の往復領域を挟むように配設されたローラ１１、１２に張設して構成され、記録用紙の排出側の端部には記録用紙をめくり上げる爪部材１３が設けられている。

【０００９】無端ベルト１０は、図３に示したように基材１０ａの表面に、ブチルゴム、粘着アクリル等により一定厚の粘着層１０ｂが形成され、好ましくは凹部や、また一定ピッチの凸条を形成して、印刷期間中は記録媒体を保持することができ、かつ爪部材１３により記録媒体を破損することなく剥離できる程度に記録用紙を保持するように全体の粘着力を調整されている。

【００１０】この実施例において、記録用紙２０の先端２０ａを搬送機構５の無端ベルト１０に押し付けると、記録用紙２０は粘着層１０ｂの粘着力により無端ベルト１０に固定される（図４（I））。この状態でローラ１１、１２を駆動すると、記録用紙２０は、印刷領域に搬送され、記録ヘッド７により印刷データに対応する画像や文字が印刷される（図４（II））。

【００１１】この過程において記録用紙２０は、無端ベルト１０の粘着力に保持されているから、無端ベルトの移動に忠実に同期して移動するから、ローラ対による搬送時におけるスリップに起因する紙送り誤差が生じることはない。

【００１２】印刷が進行して記録用紙２０の先端２０ａが爪部材１３に到達すると、記録用紙２０は爪により無端ベルト１０から順次剥離されて図示しない排紙トレーに排出される（図４（III））。

【００１３】図５は、本発明の他の実施例を示すものであって、スポンジ等の水を吸収保持可能なクリーニング部材１４が、駆動機構１５により無端ベルトの表面に接離可能に設けられている。

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【００１４】この実施例において、大量の印刷により粘着層１０ａの粘着力が低下した時点で、クリーニング部材１４に水を含ませた状態で、粘着層１０ａに弾接させ、搬送機構５を作動させると、粘着層１０ａの粘着力が水により減じられ、表面に付着した紙粉がクリーリング部材１４に掻取られて除去される。

【００１５】なお、上述の実施例においては、記録用紙を粘着力により固定するようにしているが、粘着層を摩擦帯電可能な高分子絶縁材により構成し、必要に応じて摩擦手段や、コロナ放電手段等の帯電手段を配置することにより同様の作用を得ることができる。

【００１６】また、上述の実施例においては、粘着層を無端ベルトとして形成したが、記録ヘッドに対向する領域がほぼ平面部と看做せる径のローラの表面に形成しても同様の作用を奏する。

【００１７】さらに、上述の実施例においては、インクジェット記録ヘッドにより印刷する場合について説明したが、昇華型記録ヘッドや熱転写記録ヘッド、ワイヤインパクト記録ヘッド等、他の形式の記録ヘッドを使用した記録装置に適用しても同様の作用を奏することは明らかである。

【００１８】

【発明の効果】以上、説明したように本発明においては、主走査方向に往復動するキャリッジに搭載されてドット

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を形成する記録ヘッドと、副走査方向に記録媒体を搬送する記録媒体搬送機構とを備えた記録装置において、記録媒体搬送機構が、少なくとも表面に吸着層を備えた無端回転部材により構成されているため、記録用紙を粘着力により回転部材に保持して印刷領域を移動させることができ、従来のようにローラ間での記録媒体のスリップが皆無となり、記録媒体の種類に関わりなく、高い精度で記録用紙を紙送りすることができる。

【図面の簡単な説明】

【図１】本発明の記録装置の一実施例を示す図である。

【図２】同上記録装置の記録用紙搬送機構の一例を示す断面図である。

【図３】記録用紙搬送機構を構成する無端ベルトに一実施例を示す断面図である。

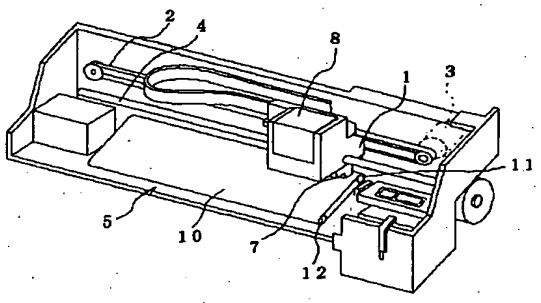
【図４】図（I）乃至（III）は、それぞれ同上記録装置の紙送り動作を示す図である。

【図５】本発明の他の実施例を示す図である。

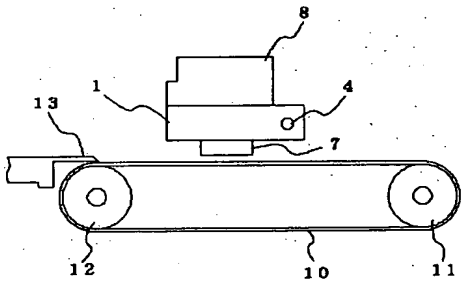
【符号の説明】

１　キャリッジ
５　記録媒体搬送機構
７　記録ヘッド
１０　無端ベルト
１３　爪部材

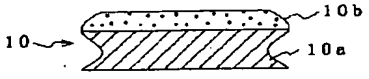
【図１】



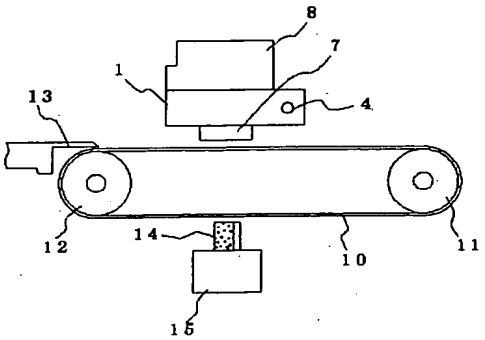
【図２】



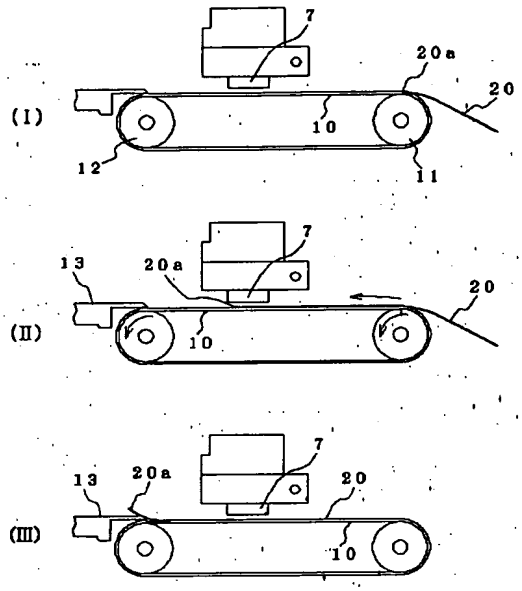
【図３】



【図５】



【図４】



RECORDER

Patent Number: JP2001302012
Publication date: 2001-10-31
Inventor(s): USUI MINORU
Applicant(s): SEIKO EPSON CORP
Requested Patent: ☐ JP2001302012
Application Number: JP20000116333 20000418
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IPC Classification: B65H5/02; B41J2/01; B65H5/00; B65H29/56
EC Classification:
Equivalents:

Abstract

PROBLEM TO BE SOLVED: To feed recording paper with high accuracy irrespective of the type of the recording paper.
SOLUTION: A recorder comprises a recording head 7 mounted, for dot formation, on a carriage 1 capable of reciprocation in a main scanning direction, and a recording medium feed mechanism 5 for feeding a recording medium in a subsidiary scanning direction. The recording medium feed mechanism 5 comprises an endless belt 10 having an adhesive layer at least over the obverse surface.

PATENT ABSTRACTS OF JAPAN

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(71)Applicant : SEIKO EPSON CORP

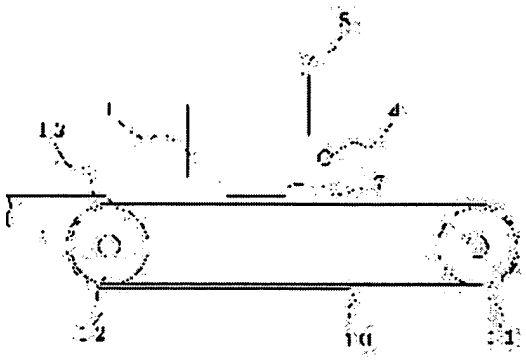
(72)Inventor : USUI MINORU

(54) RECORDER

(57)Abstract:

PROBLEM TO BE SOLVED: To feed recording paper with high accuracy irrespective of the type of the recording paper.

SOLUTION: A recorder comprises a recording head 7 mounted, for dot formation, on a carriage 1 capable of reciprocation in a main scanning direction, and a recording medium feed mechanism 5 for feeding a recording medium in a subsidiary scanning direction. The recording medium feed mechanism 5 comprises an endless belt 10 having an adhesive layer at least over the obverse surface.



LEGAL STATUS

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[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

* NOTICES *

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2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] A recording device constituted by endless rotation member which said record-medium conveyance device equipped with an adsorption layer on the surface at least in a recording device equipped with a recording head which is carried in carriage which reciprocates to a main scanning direction, and forms a dot, and a record-medium conveyance device in which a record medium is conveyed in the direction of vertical scanning.
[Claim 2] A recording device according to claim 1 with which claw part material for exfoliation is arranged at an exhaust port side of said record-medium conveyance device.
[Claim 3] A recording device according to claim 1 with which said adsorption layer is constituted by adhesive rubber.
[Claim 4] A recording device according to claim 1 with which said adsorption layer is constituted by electrification material.
[Claim 5] A recording device according to claim 1 with which the concavo-convex section which adjusts a touch area with a record medium is formed in the surface of said adhesive layer.
[Claim 6] A recording device given in a claim by which a cleaning member which sinks in water is prepared in the surface of said adsorption layer possible [attachment and detachment].

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3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] This invention relates to the recording device and twist details which print a record medium by the recording head which carries out the regurgitation of the ink drop from a nozzle orifice at a form conveyance device.
[0002]
[Description of the Prior Art] It is used for printing of the printed matter of the high quality of for [commerce], such as a poster, using the high level of the color printing engine performance of the ink jet type recording head in recent years. On the other hand, a recording device arranges a roller pair so that the upstream of the migration field of a recording head and the downstream may be inserted, and it is constituted so that the record form of a simple leaf may be conveyed in a predetermined pitch by one side of these roller pair.
[0003]
[Problem(s) to be Solved by the Invention] However, generally, since flexibility is low as compared with the record form for office work with the large and size of a record form, the conveyance precision of a record form falls by slipping between rollers etc., and a record medium to be printed in high quality has the problem that printing in the meant quality is difficult. Are concerned, and there is no place which this invention is made in view of such a problem, and is made into the purpose in the class of record form, and it is offering the recording device which can carry out paper feed in a high precision.
[0004]
[Means for Solving the Problem] It was made for an endless rotation member which said record-medium conveyance device equipped with an adsorption layer on the surface at least in a recording device equipped with a recording head which is carried in carriage which reciprocates to a main scanning direction in this invention, and forms a dot in order to solve such a problem, and a record-medium conveyance device in which a record medium is conveyed in the direction of vertical scanning to constitute.
[0005]
[Function] In order to hold a record form to a rotation member by adsorption power and to move a printing field, the slip of the record medium between rollers becomes that there is nothing.
[0006]
[Embodiment of the Invention] Then, based on the example illustrating the details of this invention, it explains below. Drawing 1 shows one example of the recording device of this invention, and it connects with a motor 3 through a timing belt 2, and carriage 1 is constituted by the cross direction of the record form which is guided at the guide member 4 and conveyed according to the record-medium conveyance device 5, i.e., a main scanning direction, so that both-way migration may be carried out.
[0007] A recording head 7 and the ink jet recording head which carries out the regurgitation of the ink drop from a nozzle orifice in this example are prepared, and the ink cartridge 8 which supplies ink to a recording head 7 is formed in the upper surface removable at the side which counters the record form of

carriage 1.
[0008] Drawing 2 stretches the endless belt 10 with which this invention is the record-medium conveyance device 5 by which it is characterized, and equipped the surface with the adhesive layer at least on the rollers 11 and 12 arranged so that it might face across the both-way field of carriage 4, and is constituted, and the claw part material 13 which has turned over the record form is formed in the edge by the side of discharge of a record form.
[0009] As shown in drawing 3 , adhesive layer 10b of fixed thickness is formed in the surface of base material 10a of petit RUGOMU, an adhesion acrylic, etc., and the endless belt 10 is having the whole adhesion adjusted so that a record form may be preferably held to a crevice and the degree which can exfoliate without being able to form the protruding line of constant pitch again, and being able to hold a record medium during a printing period, and damaging a record medium by the claw part material 13.
[0010] In this example, when tip 20a of the record form 20 is forced on the endless belt 10 of the conveyance device 5, the record form 20 is fixed to the endless belt 10 by the adhesion of adhesive layer 10b (drawing 4 (I)). If rollers 11 and 12 are driven in this condition, the record form 20 will be conveyed to a printing field, and the image and alphabetic character corresponding to print data will be printed by the recording head 7 (drawing 4 (II)).
[0011] Since the record form 20 is held in this process at the adhesion of the endless belt 10, and it synchronizes to migration of an endless belt faithfully and moves, the paper feed error resulting from the slip at the time of conveyance by the roller pair does not arise.
[0012] If printing advances and tip 20a of the record form 20 reaches the claw part material 13, the record form 20 will be discharged by the paper output tray which sequential exfoliation is carried out from the endless belt 10 with a pawl, and is not illustrated (drawing 4 (III)).
[0013] Drawing 5 shows other examples of this invention, and the cleaning member 14 which can absorption hold water, such as sponge, is formed in the endless hair side of belt side possible [attachment and detachment] by the drive 15.
[0014] In this example, if it is made to **** to adhesive layer 10a and the conveyance device 5 is operated where water is included in the cleaning member 14 when the adhesion of adhesive layer 10a declines by a lot of printing, the adhesion of adhesive layer 10a will be reduced bywater, and extra jacket **** removal of the paper powder adhering to the surface will be carried out at the Cree ring member 14.
[0015] In addition, in an above-mentioned example, although he is trying to fix a record form according to adhesion, the macromolecule insulating material in which frictional electrification is possible can constitute an adhesive layer, and the same operation can be acquired by arranging a friction means and electrification means, such as a corona discharge means, if needed.
[0016] Moreover, in an above-mentioned example, although the adhesive layer was formed as an endless belt, even if the field which counters a recording head forms in the surface of the roller of the path it can be considered mostly that is the plane section, the same operation is done so.
[0017] Furthermore, in an above-mentioned example, although the case where it printed by the ink jet recording head was explained, even if it applies to the recording device which used recording heads of other format, such as a sublimation mold recording head, a thermal-transfer-recording arm head, and a wire impact recording head, it is clear to do the same operation so.
[0018]
[Effect of the Invention] As mentioned above, as explained, in this invention, it sets to the recording device equipped with the recording head which is carried in the carriage which reciprocates to a main scanning direction, and forms a dot, and the record-medium conveyance device in which a record medium is conveyed in the direction of vertical scanning. Since the record-medium conveyance device is constituted by the endless rotation member which equipped the surface with the adsorption layer at least, A record form can be held to a rotation member according to adhesion, a printing field can be moved, the slip of the record medium between rollers becomes that there is nothing like before, are concerned, there is nothing in the class of record medium, and paper feed of the record form can be carried out in a high precision.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is drawing showing one example of the recording device of this invention.
[Drawing 2] It is the cross section showing an example of the record form conveyance device of a recording device same as the above.
[Drawing 3] It is the cross section showing one example to the endless belt which constitutes a record form conveyance device.
[Drawing 4] They are drawing (I) thru/or (III) drawing showing paper feed actuation of a recording device same as the above, respectively.
[Drawing 5] It is drawing showing other examples of this invention.
[Description of Notations]
1 Carriage
5 Record-Medium Conveyance Device
7 Recording Head
10 Endless Belt
13 Claw Part Material

[Translation done.]

* NOTICES *

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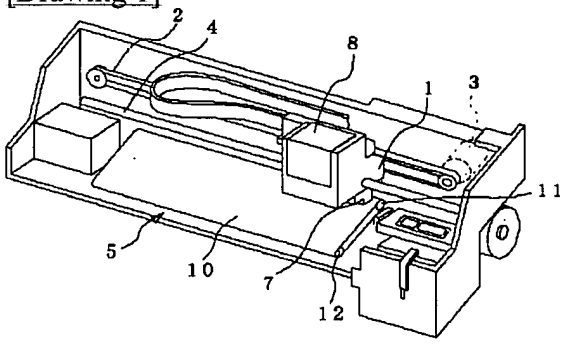
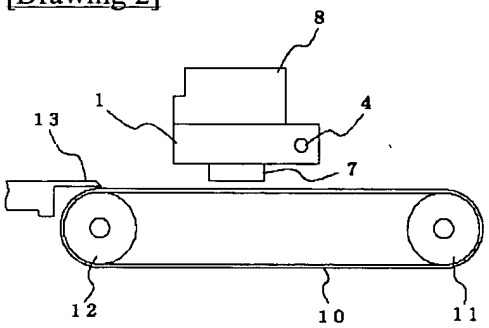
3.In the drawings, any words are not translated.

DRAWINGS

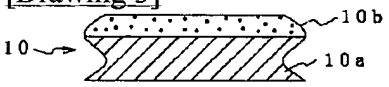
[Drawing 1]



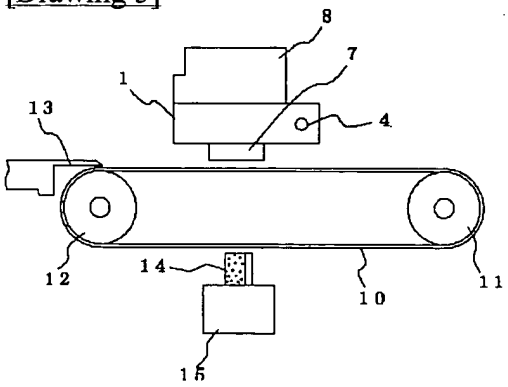
[Drawing 2]



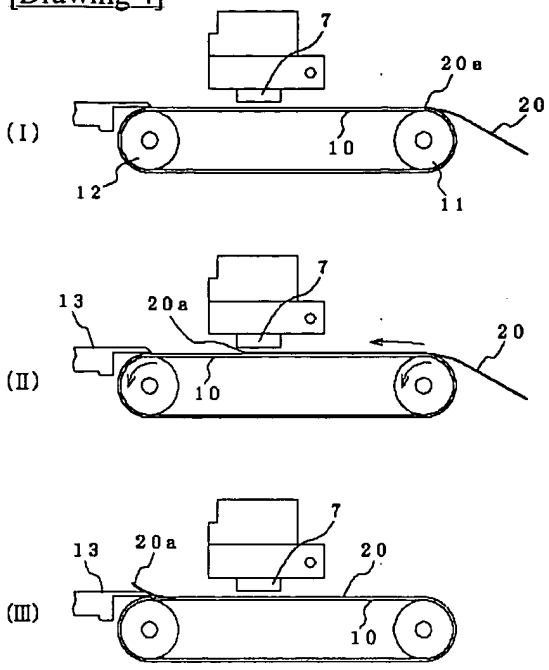
[Drawing 3]



[Drawing 5]



[Drawing 4]



[Translation done.]